Denham Green E-ACT Computing HLP

	Digital Literacy		Information Technology		Computer Science	
	Use technology safely, keep personal information private and treat others with respect. Know what to do if something goes wrong. Know how online behaviour affects others and know risks associated with content, contact and conduct.		Creating, saving, organising and opening files on a range of programs. Know that there are a range of devices to save information		Programming, knowledge of networks, how searches are performed	
	Aut 1	**Aut 2**	**Spr 1**	**Spr 2**	**Sum 1**	**Sum 2**
	Computing systems and networks	**Creating media**	**Programming A**	**Data and information**	**Creating media**	**Programming B**
Year 1	**Aut 1**	**Aut 2**	**Spr 1**	**Spr 2**	**Sum 1**	**Sum 2**
	Technology around us	**Digital painting**	**Moving a robot**	**Grouping data**	**Digital writing**	**Programming animations**
	Recognising technology in school and using it responsibly	Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally	Writing short algorithms and programs for floor robots, and predicting program outcomes.	Exploring object labels, then using them to sort and group objects by properties.	Using a computer to create and format text, before comparing to writing non-digitally.	Designing and programming the movement of a character on screen to tell stories.
Components	1. To identify technology 2. To identify a computer and its main parts 3. To use a mouse in different ways 4. To use a keyboard to type 5. To use the keyboard to edit text **6.** To create rules for using technology responsibly	1. To describe what different freehand tools do 2. To use the shape tool and the line tools 3. To make careful choices when painting a digital picture 4. To explain why I chose the tools I used 5. To use a computer on my own to paint a picture **6.** To compare painting a picture on a computer and on paper	1. To explain what a given command will do 2. To act out a given word 3. To combine forwards and backwards commands to make a sequence 4. To combine four direction commands to make sequences 5. To plan a simple program	1. To label objects 2. To identify that objects can be counted 3. To describe objects in different ways 4. To count objects with the same properties 5. To compare groups of objects 6. To answer questions about groups of objects	1. To use a computer to write 2. To add and remove text on a computer 3. To identify that the look of text can be changed on a computer 4. To make careful choices when changing text 5. To explain why I used the tools that I chose 6. To compare writing on a computer with writing on paper.	1. To choose a command for a given purpose 2. To show that a series of commands can be joined together 3. To identify the effect of changing a value 4. To explain that each sprite has its own instructions 5. To design the parts of a project **6.** To use my algorithm to create a program

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			6. To find more than one solution to a problem			
Year 2	**Aut 1**	**Aut 2**	**Spr 1**	**Spr 2**	**Sum 1**	**Sum 2**
	Information technology around us	**Digital photography**	**Robot algorithms**	**Pictograms**	**Making music**	**Programming Quizzes**
	Identifying IT and how its responsible use improves our world in school and beyond.	Capturing and changing digital photographs for different purposes	Creating and debugging programs, and using logical reasoning to make predictions.	Collecting data in tally charts and using attributes to organise and present data on a computer.	Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.	Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.
Components	1. To recognise the uses and features of information technology 2. To identify information technology in the home 3. To identify information technology beyond school 4. To explain how information technology benefits us 5. To show how to use information technology safely 6. To recognise that choices are made when using information technology	1. To know what devices can be used to take photographs 2. Know how to use a digital device to take a photograph 3. Describe what makes a good photograph 4. Know how photographs can be improved 5. Know how to use tools to change an image 6. To recognise that images can be changed	1. To describe a series of instructions as a sequence 2. To explain what happens when we change the order of instructions 3. To use logical reasoning to predict the outcome of a program (series of commands) 4. To explain that programming projects can have code and artwork 5. To design an algorithm 6. To create and debug a program that I have written	1. To recognise that we can count and compare objects using tally charts 2. To recognise that objects can be represented as pictures 3. To create a pictogram 4. To select objects by attribute and make comparisons 5. To recognise that people can be described by attributes 6. To explain that we can present information using a computer	1. To say how music can make us feel 2. To identify that there are patterns in music 3. To describe how music can be used in different ways 4. To show how music is made from a series of notes 5. To create music for a purpose 6. To review and refine our computer work	1. To explain that a sequence of commands has a start 2. To explain that a sequence of commands has an outcome 3. To create a program using a given design 4. To change a given design 5. To create a program using my own design 6. To decide how my project can be improved
Year 3	**Aut 1**	**Aut 2**	**Spr 1**	**Spr 2**	**Sum 1**	**Sum 2**
	Connecting computers	**Stop-frame animation**	**Sequencing sounds**	**Branching databases**	**Desktop publishing**	**Events and actions in programs**

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	Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.	Capturing and editing digital still images to produce a stop-frame animation that tells a story.	Creating sequences in a block-based programming language to make music.	Building and using branching databases to group objects using yes/no questions.	Creating documents by modifying text, images, and page layouts for a specified purpose.	Writing algorithms and programs that use a range of events to trigger sequences of actions.
Components	1. To explain how digital devices function 2. To identify input and output devices 3. To recognise how digital devices can change the way we work 4. To explain how a computer network can be used to share information 5. To explore how digital devices can be connected 6. To recognise the physical components of a network	1. To explain that animation is a sequence of drawings or photographs 2. To relate animated movement with a sequence of images 3. To plan an animation 4. To identify the need to work consistently and carefully 5. To review and improve an animation 6. To evaluate the impact of adding other media to an animation	1. To explore a new programming environment 2. I can identify that each sprite is controlled by the commands I choose 3. To explain that a program has a start 4. To recognise that a sequence of commands can have an order 5. To change the appearance of my project 6. To create a project from a task description	1. To create questions with yes/no answers 2. To identify the object attributes needed to collect relevant data 3. To create a branching database 4. To identify objects using a branching database 5. To explain why it is helpful for a database to be well structured 6. To compare the information shown in a pictogram with a branching database	1. To recognise how text and images convey information 2. To recognise that text and layout can be edited 3. To choose appropriate page settings 4. To add content to a desktop publishing publication 5. To consider how different layouts can suit different purposes 6. To consider the benefits of desktop publishing	1. To explain how a sprite moves in an existing project 2. To create a program to move a sprite in four directions 3. To adapt a program to a new context 4. To develop my program by adding features 5. To identify and fix bugs in a program 6. To design and create a maze-based challenge
Year 4	**Aut 1**	**Aut 2**	**Spr 1**	**Spr 2**	**Sum 1**	**Sum 2**
	The internet	**Audio editing**	**Repetition in shapes**	**Data logging**	**Photo editing**	**Repetition in games**
	Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.	Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	Using a text-based programming language to explore count-controlled loops when drawing shapes.	Recognising how and why data is collected over time, before using dataloggers to carry out an investigation.	Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled.	Using a block-based programming language to explore count-controlled and infinite loops when creating a game.
Components	1. To describe how networks physically connect to other networks	1. To identify that sound can be digitally recorded: 2. To use a digital device to record sound:	1. To identify that accuracy in programming is important	1. To explain that data gathered over time can be used to answer questions 2. To use a digital device to collect data automatically	1. To explain that digital images can be changed	1. To develop the use of count-controlled loops in a different programming environment

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	2. To recognise how networked devices make up the internet 3. To outline how websites can be shared via the World Wide Web 4. To describe how content can be added and accessed on the World Wide Web 5. To recognise how the content of the WWW is created by people 6. To evaluate the consequences of unreliable content	3. To explain that a digital recording is stored as a file: 4. To explain that audio can be changed through editing: 5. To show that different types of audio can be combined and played together: 6. To evaluate editing choices made:	2. To create a program in a text-based language 3. To explain what 'repeat' means 4. To modify a count-controlled loop to produce a given outcome 5. To decompose a program into parts 6. To create a program that uses count-controlled loops to produce a given outcome	3. To explain that a data logger collects 'data points' from sensors over time 4. To use data collected over a long duration to find information 5. To identify the data needed to answer questions 6. To use collected data to answer questions	2. To change the composition of an image 3. To describe how images can be changed for different uses 4. To make good choices when selecting different tools 5. To recognise that not all images are real 6. To evaluate how changes can improve an image	2. To explain that in programming there are infinite loops and count controlled loops 3. To develop a design which includes two or more loops which run at the same time 4. To modify an infinite loop in a given program 5. To design a project that includes repetition 6. To create a project that includes repetition
Year 5	**Aut 1**	**Aut 2**	**Spr 1**	**Spr 2**	**Sum 1**	**Sum 2**
	Sharing information	**Video editing**	**Selection in physical computing**	**Flat-file databases**	**Vector drawing**	**Selection in quizzes**
	Identifying and exploring how information is shared between digital systems.	Planning, capturing, and editing video to produce a short film.	Exploring conditions and selection using a programmable microcontroller	Using a database to order data and create charts to answer questions.	Creating images in a drawing program by using layers and groups of objects	Exploring selection in programming to design and code an interactive quiz.
Components	1. To explain that computers can be connected together to form systems 2. To recognise the role of computer systems in our lives 3. To recognise how information is transferred over the internet 4. To explain how sharing information online lets people in different places work together	1. To recognise video as moving pictures, which can include audio 2. To identify digital devices that can record video 3. To capture video using a digital device 4. To recognise the features of an effective video 5. To identify that video can be improved through reshooting and editing	1. To control a simple circuit connected to a computer 2. To write a program that includes count-controlled loops 3. To explain that a loop can stop when a condition is met, eg number of times 4. To conclude that a loop can be used to repeatedly	1. To use a form to record information 2. To compare paper and computer-based databases 3. To outline how grouping and then sorting data allows us to answer questions 4. To explain that tools can be used to select specific data 5. To explain that computer programs can be used to compare data visually	1. To identify that drawing tools can be used to produce different outcomes 2. To create a vector drawing by combining shapes 3. To use tools to achieve a desired effect 4. To recognise that vector drawings consist of layers 5. To group objects to make them easier to work with	1. To explain how selection is used in computer programs 2. To relate that a conditional statement connects a condition to an outcome 3. To explain how selection directs the flow of a program 4. To design a program which uses selection 5. To create a program which uses selection

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	5. To contribute to a shared project online 6. To evaluate different ways of working together online	6. To consider the impact of the choices made when making and sharing a video	check whether a condition has been met 5. To design a physical project that includes selection 6. To create a controllable system that includes selection	6. To apply my knowledge of a database to ask and answer real-world questions	6. To evaluate my vector drawing	6. To evaluate my program
Year 6	**Aut 1**	**Aut 2**	**Spr 1**	**Spr 2**	**Sum 1**	**Sum 2**
	Internet communication	**Webpage creation**	**Variables in games**	**Introduction to spreadsheets**	**3D modelling**	**Sensing**
	Recognising how the WWW can be used to communicate and be searched to find information.	Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.	Exploring variables when designing and coding a game.	Answering questions by using spreadsheets to organise and calculate data.	Planning, developing, and evaluating 3D computer models of physical objects.	Designing and coding a project that captures inputs from a physical device.
Components	1. To identify how to use a search engine 2. To describe how search engines select results 3. To explain how search results are ranked 4. To recognise why the order of results is important, and to whom 5. To recognise how we communicate using technology 6. To evaluate different methods of online communication	1. To review an existing website and consider its structure 2. To plan the features of a web page 3. To consider the ownership and use of images (copyright) 4. To recognise the need to preview pages 5. To outline the need for a navigation path 6. To recognise the implications of linking to content owned by other people	1. To define a 'variable' as something that is changeable 2. To explain why a variable is used in a program 3. To choose how to improve a game by using variables 4. To design a project that builds on a given example 5. To use my design to create a project 6. To evaluate my project	1. To identify questions which can be answered using data 2. To explain that objects can be described using data 3. To explain that formula can be used to produce calculated data 4. To apply formulas to data, including duplicating 5. To create a spreadsheet to plan an event 6. To choose suitable ways to present data	1. To use a computer to create and manipulate three-dimensional (3D) digital objects 2. To compare working digitally with 2D and 3D graphics 3. To construct a digital 3D model of a physical object 4. To identify that physical objects can be broken down into a collection of 3D shapes 5. To design a digital model by combining 3D objects 6. To develop and improve a digital 3D model	1. To create a program to run on a controllable device 2. To explain that selection can control the flow of a program 3. To update a variable with a user input 4. To use an conditional statement to compare a variable to a value 5. To design a project that uses inputs and outputs on a controllable device 6. To develop a program to use inputs and outputs on a controllable device